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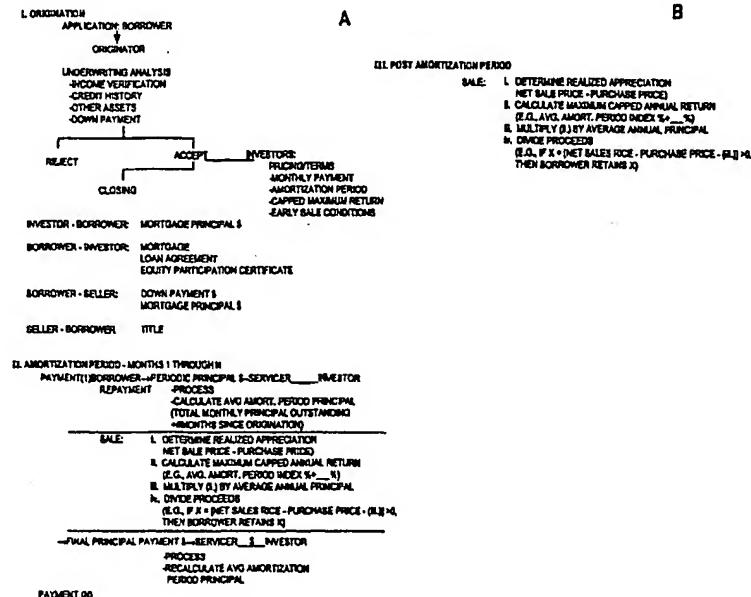
(57) Abstract

A system and method for implementing a mortgage plan. Data is input to a computer system regarding the morgage terms, and the computer system is used to prepare a mortgage document which creates an equity participation mortgage obligation in which the lender shares in a predetermined percentage of realized appreciation on the subsequent sale of the asset which is the subject of the morgage. In a particular preferred embodiment, this mortgage plan can provide the borrower with interest–free loan, a faster amortization schedule, and a larger, yet more affordable mortgage.

SYSTEM AND METHOD FOR
IMPLEMENTING A MORTGAGE PLAN

Background Art

Mortgages, i.e., liens on land and improvements thereon, given as security for the

payment of debts, are time-honored instruments for financing the purchase of real estate.

A highly developed market exists for traditional real estate mortgages where lenders are

compensated with interest on the principal amount extended. Fundamental aspects of

5   traditional real estate mortgage lending at interest: 1) create a large prospective financial

burden for borrowers in the form of total interest paid over the life of the instrument that

normally exceeds the original principal extended, 2) constrain the borrowing, and

ultimately, purchasing capacity of borrowers, and 3) subject lenders to risks stemming

from, among other factors, variations in future interest rates. These fundamental aspects

10   of traditional real estate mortgage lending have become firmly entrenched, with relatively

little variation in the mortgage plan approach.

Nonconventional residential mortgage plans have been proposed and used,

however. The most widely used nonconventional mortgage plan, perhaps, is the

adjustable rate mortgage (ARM), which attempts to shift the interest rate risk to

15   borrowers in return for providing lower initial interest rates. Other alternative

instruments which have seen limited use in the past include the graduated payment

mortgage (GPM), the price level adjusted mortgage (PLAM), and the shared appreciation

mortgage (SAM). Each of these mortgage plans was developed to address specific

problems with the vulnerability by traditional mortgage lenders to higher interest rates.

The first was developed to expand the number of potential homeowners eligible for

mortgage financing. This is a particular concern in inflationary times when high rates

5   depress the borrowing capacity of potential homeowners. By skewing the payment

burden toward later in the amortization period, the GPM allowed borrowers to obtain

mortgage financing based on their prospects for increased future income.

The PLAM addressed the different problem of the lender's exposure to

subsequent inflationary environments. Under this plan, the borrower's payments,

10   consisting of principal and interest, varied according to fluctuations in an outside index

of inflation, such as the Consumer Price Index.

The first residential SAM was offered in 1980 and required a one-third share in

any appreciation of the value of the securing home in exchange for a one-third reduction

in the current interest rate.   SAM's had a fixed maturity date when all principal and

15   compensation were due. They never achieved popularity for a variety of reasons, as

explained in U.S. Patent No. 5,644,726 to Oppenheimer:

> First of all, the SAM required a costly and uncertain specific
> house appraisal to determine the lender's share, if any, of
> appreciation after forced refinancing in ten years. Secondly,
20   > the homeowner had to refinance, not only the remaining
> mortgage principal, but original lender's share of
> appreciation. Finally the homeowner had no way of fixing,
> at the inception of the SAM mortgage, his monthly mortgage
> payments after the initial ten year refinancing.

25
(Oppenheimer, col. 2, lines 7-14).

Another example of a nonconventional mortgage is disclosed in US. Patent No.

5,819,230 to Robert A. Christie, incorporated herein by reference, which references the

Merrill Lynch Mortgage 100 program. There, the home buyer initially places marketable securities having a value of at least 39% of the home's purchase price in an account pledged as collateral on the mortgage loan, and appreciation of the securities over the life of the loan helps compensate for risk associated with any depreciation in home value.

5   Similarly, U.S. Patent No. 5,852,811 to Charles Agee Atkins discloses a mortgage plan in which money normally used to amortize the mortgage is placed into other asset accounts, so that as the home increases in value, additional loans may be made to the borrower to keep the loan-to-value ration constant at 80%.

Yet another example of a nonconventional mortgage plan approach is disclosed

10   in the '726 Oppenheimer patent, also incorporated herein by reference. This discloses the use of a two-part principal allocation, a traditional interest bearing portion "A" and an equity portion "B", in which the principal is not repaid on portion B until portion A is completely amortized. An outside housing index is used to annually calculate the amount of equity participation to be realized by the lender at sale or maturity, regardless

15   of changes in the actual home's value. Under this plan, the lender shares not only in the appreciation in the house above its initial purchase price, but also has a claim against the equity (above the loan balance at maturity) created by the borrower's repayment of principal. Also under this plan, there is a fixed maturity date when all principal and compensation are due.

20   A basic characteristic in common with all traditional and alternative mortgage instruments is that interest paid currently on outstanding principal is the dominant form of compensation to the lender. This must be the case when the two traditional sources of mortgage capital, portfolio lending by financial institutions and securitization in the

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secondary market, each have their own current liability funding costs to meet. This

practice, as a byproduct, returns principal to the lender in a back-loaded, non-linear

manner so that the average principal balance outstanding during the amortization period

remains significantly above 50% of the original amount, as illustrated in FIGURE 3. For

5   instance, the midpoint in principal reduction during the amortization period of the

traditional 30-year fixed rate loan in Figure 3 is approximately 23 years.

This slow, back-loaded return of principal makes it difficult to reliably generate

a sufficient return on investment where home appreciation, instead of periodic interest,

is to be the dominant or sole form of compensation.

10   The return on a mortgage, or any investment, can be measured as:

$$\frac{\text{Average Annual Profit}}{\text{Average Annual Principal}}$$

What former mortgage plans ignore is the value of maximizing the return by

15   manipulating the denominator, annual average principal, so that it is repaid much more

rapidly, and on or near a straight line amortization basis. This can only be done by

removing current interest paid on outstanding principal or making it an inconsequential

component of investor compensation. When this is done, even a relatively small average

annual profit generation, which would be insufficient for mortgages with back-loaded

20   returns of principal, produces a satisfactory return.

Under existing mortgage plans, the only way to speed the return of principal to

the lender is by drastically increasing the size of the monthly payment, or conversely,

drastically lowering the initial mortgage principal lent. Doing so either creates an

unaffordable monthly payment burden, or substantially diminishes the borrower's

25   purchasing capacity. In either case, the principal return remains significantly back-loaded

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and non-linear so that the average principal outstanding during the amortization period is a larger percentage of the original balance.

Currently, there is a traditional "triangular" approach to the implementation of mortgages on the lender's side, using a mortgage originator, a mortgage lender, and a
5   servicer of the mortgage. The "originator", which may be a bank, a savings and loan/thrift institution, or a mortgage broker, initially obtains the client/borrower and also typically performs underwriting duties (e.g., verifying income, credit approvals, providing documentation at closing, including the loan agreement (the "note') and the mortgage agreement). The "lender" is the entity providing the mortgage funds, which are
10 typically wired at closing. The "servicer" is the entity that services the mortgage during its life (e.g., periodic mortgage payments are sent by the borrower to the servicer). Those of ordinary skill in the art will understand that, within the spirit and scope of the present invention described below, this conventional triangular approach can be maintained, and may be accomplished by one single party (providing all three functions outlined in this
15 paragraph), or either two or three parties each providing at least one of the three functions, subject to competitive and regulatory considerations.

In the past two decades within the United States, for example, relevant (e.g., U.S. Treasury) interest rates have fluctuated by as much as 10% or more, subjecting both borrowers and lenders to obvious and considerable risks. Accordingly, it would be highly
20 advantageous to provide a new system and method for implementing a mortgage plan that can reduce lender risks associated with fluctuations in interest. It would also be advantageous to provide the lender with the potential for higher returns without unduly penalizing the lender from a tax perspective, and while also providing the borrower with

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incentives such as the potential for obtaining an increased mortgage which can be amortized more quickly than with conventional mortgage plans.

Accordingly, it is an object of the present invention to provide a new mortgage plan in which the lender can maximize its return while reducing lender risks associated with fluctuating interest rates.

It is another object of the present invention to reduce the amortization time period by removing current interest paid or by making it an inconsequential

component of investor compensation, thus also providing the borrower with the opportunity for obtaining a larger mortgage.

Disclosure of Invention

These and other objects are achieved by the present invention, which preserves the advantages of existing systems and methods for implementing mortgage plans while overcoming disadvantages associated with such systems and methods, and also providing new advantages.

The invention is a system and method for implementing a mortgage plan using a computer system to provide mortgage documents which specify an amount of mortgage principal and a predetermined term for repayment of the principal, preferably with no interest. The mortgage documents also create a promissory obligation by the borrower, termed here "an equity participation mortgage obligation", to share with the lender a certain predetermined percentage of the realized appreciation on the subsequent sale proceeds of the mortgage asset.

In a particularly preferred embodiment of the present invention, a method is employed using a computer system for implementing a mortgage plan and preparing mortgage documents specifying payment obligations of a borrower to a lender. The mortgage plan includes an equity participation mortgage obligation. Data is first input into the computer system regarding the terms of the mortgage, including the principal amount and the amortization period. Annual average principal and periodic payment obligations of the borrower accruing under the mortgage obligation are then calculated. A mortgage document is then prepared which includes the equity participation mortgage obligation and which specifies that the lender may share in a predetermined percentage of realized appreciation on subsequent sale of the asset which is the subject of the mortgage.

In one preferred embodiment, mortgage documents are prepared which do not require the borrower to pay interest on the mortgage principal amount. Also, the mortgage documents may permit the sale of the asset in the event of a default in payments by the borrower. Further, the mortgage documents may also limit the lender's predetermined percentage of the realized appreciation on the subsequent asset sale to a specified percentage of the total realized appreciation value.

In another embodiment, a computer system may be used to calculate the average mortgage principal outstanding during the amortization period. Mortgage documents are then prepared which limit the lender's predetermined percentage of the realized appreciation on the subsequent asset sale to an amount no greater than an amount equal to a predetermined percentage annual return on the average mortgage principal outstanding during the amortization period, plus a specified percentage of the total

amortization period return thereafter. The computer system may also be used to calculate

a minimum total return for the lender which may exceed the predetermined percentage

of realized appreciation on the subsequent sale of the asset. The mortgage documents

may also specify a termination date for the mortgage which is synchronous with the sale

5   of the asset subject to the mortgage. Similarly, the mortgage documents may specify

that the repayment of any existing principal is synchronized with the sale of the asset

subject to the mortgage, and/or that the payment of all obligations owed by the borrower

to the lender is also synchronized with the sale of the asset subject to the mortgage.

In another embodiment, the present invention provides a computer system for

10   implementing a mortgage plan and preparing mortgage documents specifying payment

obligations of a borrower to a lender, the mortgage plan including an equity participation

mortgage obligation. The computer system includes at least one computer having a

central processing unit and a memory, for receiving data regarding the terms of the

mortgage, including the principal amount and the amortization period. The computer

15   calculates annual average principal and periodic payment obligations of the borrower

accruing under the mortgage obligation, and prepares mortgage documents which include

the equity participation mortgage obligation and which specify that the lender may share

in a predetermined percentage of realized appreciation on subsequent sale of the asset

which is the subject of the mortgage.

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Brief Description Of The Drawings

The novel features which are characteristic of the present invention are set forth

in the appended claims. The invention itself, however, together with further objects and

attendant advantages, will be best understood by reference to the following description

taken in connection with the accompanying drawings, in which:

FIGURE 1 is a schematic diagram depicting the overall system for implementing

a mortgage plan according to a preferred embodiment of the present invention;

FIGURE 2 is a graph of time in months (x-axis) versus principal amount (y-axis)

showing typical principal paydown curves for an equity participation mortgage and a

conventional mortgage plan at specified interest rates, each having the same monthly

payment in dollar terms; and

FIGURE 3 is a graph of time in year (x-axis) versus annual median sales price of

single family homes (y-axis).

Best Mode of Carrying Out the Invention

An explanation of a preferred embodiment of the system and method for

implementing a mortgage plan using a unique mortgage instrument will now be provided

by way of a specific example. Assume the initial value (termed "A") of a home is

$312,500, and a 20% down payment of $62,500 is given. Thus, the initial mortgage

principal amount (B) is $250,000. Assume also that the amortization period (C) is 15

years, that the required monthly mortgage payments on principal (D) are $1,367.50, and

that the real estate appreciates at a compounded rate (F) of 3.5% (see, e.g., FIGURE 4).

Assume also that the date of the subsequent sale of the house (G) is 15 years from the

initial purchase price. Then, given the real estate appreciation

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rate F of 3.5%, after G time period of 15 years, the gross value of the home is $505,922.

Ignoring sales costs, the net appreciation is then $193,402 ($505,922-$312,500), so the

annual appreciation is $12,895 ($193,402/15). Also, the average principal balance over

the life of the mortgage ($250,000 + 0)/2) is $125,000.

Using the system of the present invention, then, the EPC permits the lender in this

example to realize an average rate of return of 10.316%, which is obtained by dividing

the annual appreciation of $12,895 by the average principal balance of $125,000.

Given the terms as defined in the above example, four equations can be obtained,

as follows:

I. Since $A1(1+F) = A2$, and $A2(1+F) = A3$, etc., $(A1+A2+....AG) - A = W$ = realized appreciation on subsequent sale of home

II. X = yearly appreciation = W/G

III. Y = average principal balance = $B1 - ((D*12) + E1) = B2$, and $B2 - ((D*12)+E2)=B3... = (B1+B2+...BG)/G$, where E is a prepaid principal factor. (E is a factor to account for any discretionary prepayment on outstanding principal in any given payment period. Borrowers should be inclined to prepay if their means allow, since it will diminish the average annual principal outstanding from which the lender's share of appreciation will be derived.)

IV. Z = average annual return = X/Y

The advantages of the mortgage instrument of the present invention over

traditional mortgage instruments involving the payment of interest are several:

(1)   A larger amount of debt principal is amortized more quickly, and in

uniform periodic amounts, since no interest need be paid (see figure 3);

(2)   Current income tax may not be incurred by the lender on its percentage

of the realized appreciation of the real estate; capital gain tax rates

(currently 20% for individual taxpayers) may be paid when the asset is

ultimately sold.

(3)   The borrower can assume a larger mortgage with no increased demand on

current income, and thus purchase a more valuable home.

5   (4)   The lender may obtain a higher risk-adjusted rate of return than with

conventional mortgage instruments, provided the rate of appreciation of

the asset remains at sufficient levels relative to the time between its

purchase and sale. (Within the United States from 1968 to 1996, the

median existing single-family house sales price increased from $20,100

10   to $118,200, an annual compound appreciation rate of 6.95%).

Comparative examples are given in Tables 1 and 2, below, of amortization

schedules for a conventional 30-year fixed-interest rate mortgage and for an equity

participation mortgage of the present invention; each example uses the same monthly

payment to determine the original principal balances. As can be seen, the mortgage plan

15   of the present invention significantly reduces the average life of the mortgage principal

while increasing the purchasing capacity of the borrower, and providing the lender with

an enhanced rate of return.

In one preferred embodiment, the mortgage plan penalizes the borrower for an

early sale of the asset. In one example, this penalty is the forfeiture of some percentage

20   of the down payment, figured on a declining scale over the first ten years of the mortgage.

A cap may be placed on the amount which the lender can realize from appreciated

earnings on the sale of the asset. In one preferred embodiment, the lender's share of the

real estate's realized appreciated value may be limited to: (1) a specified percentage of

the total realized appreciation value; or (2) no greater than an average annual return equal

to a certain percent above the average fed funds rate throughout the amortization period

on the average mortgage principal outstanding during the amortization period ("the

Amortization Period Return") plus, if the property has not yet been sold, a certain percent

5   (annually compounded) of the total amortization period return thereafter ("the Post-

Amortization Period Return"); or (3) the lesser of (1) or (2). The use of a cap can avoid

what may be viewed as a windfall result for the lender when, e.g., the borrower retains

the asset for a substantial time period and the rate of appreciation of the asset is extremely

high over that period.

10   In another preferred embodiment, the mortgage documents could include a "non-

maturity" clause that would synchronize the end of the mortgage, the repayment of

remaining principal (if any), and the payment of the investor's compensation (the

predetermined amortization period return, plus the post-amortization period return) with

the ultimate sale of the real estate. This will further strengthen the deferred tax treatment

15   of the investment as an equity investment taxed at a gain, rather than as a debt

investment. Also, the lack of a fixed maturity date should not be viewed as a negative

for the investor, since it is believed that the potential for a secondary market for these

instruments exists which will enable the investor to liquidate its position by selling the

instrument to a third party.

20   Those of ordinary skill in the art will recognize that certain contractual provisions

may need to be provided in the mortgage documents to ensure that borrowers have

sufficient incentive to maintain the real estate subject to the mortgage, and to prevent

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borrowers from circumventing or minimizing their obligation to share appreciation with investors.

Of course, it should be understood that various changes and modifications to the preferred embodiments described herein will be apparent to those skilled in the art. Other

5   changes and modifications constituting insubstantial differences from the present invention, such as those expressed here or others left unexpressed but apparent to those of ordinary skill in the art, can be made without departing from the spirit and scope of the present invention and without diminishing its attendant advantages. It is, therefore, intended that such changes and modifications be covered by the following claims.

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Claims

1.   A method using a computer system for implementing a mortgage plan and preparing mortgage documents specifying payment obligations of a borrower to a lender, the mortgage plan including an equity participation mortgage obligation, comprising the steps of:

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inputting data into the computer system regarding the terms of the mortgage, including the principal amount and the amortization period;

using the computer system to calculate annual average principal and periodic payment obligations of the borrower accruing under the mortgage obligation;

10   and

using the computer system to prepare a mortgage document which includes the equity participation mortgage obligation and which specifies that the lender may share in a predetermined percentage of realized appreciation on subsequent sale of the asset which is the subject of the mortgage.

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2.   The method of Claim 1, further comprising the step of preparing mortgage documents which do not require the borrower to pay interest on the mortgage principal amount.

20   3.   The method of Claim 1, further comprising the step of preparing mortgage documents which permit the sale of the asset in the event of a default in payments by the borrower.

4.   The method of Claim 1, further comprising the step of preparing mortgage

documents which limit the lender's predetermined percentage of the realized appreciation

on the subsequent asset sale to a specified percentage of the total realized appreciation

value.

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5.   The method of Claim 1, further comprising the steps of:

using the computer system to calculate the average mortgage principal

outstanding during the amortization period; and

using the computer system to prepare mortgage documents which limit

10   the lender's predetermined percentage of the realized appreciation on the subsequent asset

sale to an amount no greater than an amount equal to a predetermined percentage annual

return on the average mortgage principal outstanding during the amortization period, plus

a specified percentage of the total amortization period return thereafter.

15   6.   The method of Claim 1, further comprising the step of using the computer

system to calculate a minimum total return for the lender which may exceed the

predetermined percentage of realized appreciation on the subsequent sale of the asset.

7.   The method of Claim 1, wherein the mortgage documents specify a

20   termination date for the mortgage which is synchronous with the sale of the asset subject

to the mortgage.

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8.   The method of Claim 1, wherein the mortgage documents specify that

the repayment of any existing principal is synchronized with the sale of the asset subject

to the mortgage.

5   9.   The method of Claim 1, wherein the mortgage documents specify that

the payment of all obligations owed by the borrower to the lender is synchronized with

the sale of the asset subject to the mortgage.

10.   A computer system for implementing a mortgage plan and preparing

10   mortgage documents specifying payment obligations of a borrower to a lender, the

mortgage plan including an equity participation mortgage obligation, comprising:

at least one computer including a central processing unit and a memory,

for receiving data regarding the terms of the mortgage, including the principal amount

and the amortization period, within the computer system;

15   the at least one computer calculating annual average principal and periodic

payment obligations of the borrower accruing under the mortgage obligation, and

preparing mortgage documents which include the equity participation mortgage

obligation and which specify that the lender may share in a predetermined percentage of

realized appreciation on subsequent sale of the asset which is the subject of the mortgage.

20

FIG. 1A

I. ORIGINATION

APPLICATION: BORROWER
↓
ORIGINATOR

UNDERWRITING ANALYSIS
-INCOME VERIFICATION
-CREDIT HISTORY
-OTHER ASSETS
-DOWN PAYMENT

REJECT   ACCEPT   INVESTORS:
                                     PRICING/TERMS
        CLOSING   -MONTHLY PAYMENT
                                     -AMORTIZATION PERIOD
                                     -CAPPED MAXIMUM RETURN
                                     -EARLY SALE CONDITIONS
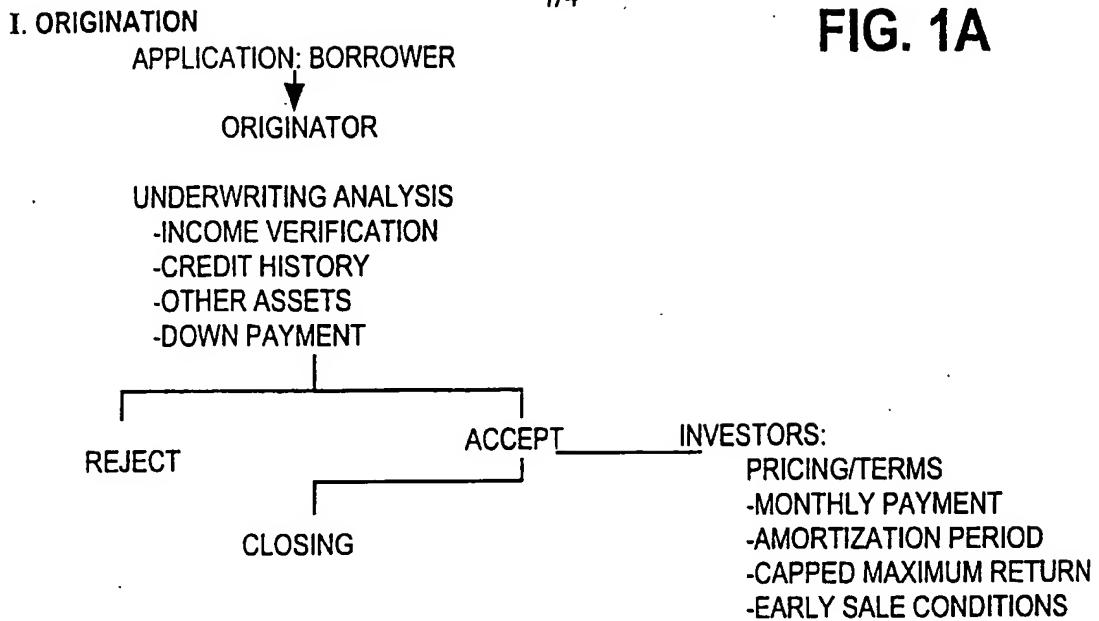
INVESTOR - BORROWER: MORTGAGE PRINCIPAL $

BORROWER - INVESTOR: MORTGAGE
                              LOAN AGREEMENT
                              EQUITY PARTICIPATION CERTIFICATE

BORROWER - SELLER: DOWN PAYMENT $
                              MORTGAGE PRINCIPAL $

SELLER - BORROWER   TITLE

II. AMORTIZATION PERIOD - MONTHS 1 THROUGH N

PAYMENT(1)BORROWER→PERIODIC PRINCIPAL $--SERVICER_____INVESTOR
            REPAYMENT   -PROCESS
                             -CALCULATE AVG AMORT. PERIOD PRINCIPAL
                             (TOTAL MONTHLY PRINCIPAL OUTSTANDING
                             ÷#MONTHS SINCE ORIGINATION)

        SALE: i. DETERMINE REALIZED APPRECIATION
                        NET SALE PRICE - PURCHASE PRICE)
                    ii. CALCULATE MAXIMUM CAPPED ANNUAL RETURN
                        (E.G., AVG. AMORT. PERIOD INDEX %+___%)
                    iii. MULTIPLY (ii.) BY AVERAGE ANNUAL PRINCIPAL
                    iv. DIVIDE PROCEEDS
                        (E.G., IF X = [NET SALES RICE - PURCHASE PRICE - (iii.)] >0,
                        THEN BORROWER RETAINS X)

→FINAL PRINCIPAL PAYMENT $→SERVICER__$__INVESTOR
                            -PROCESS
                            -RECALCULATE AVG AMORTIZATION
                              PERIOD PRINCIPAL

III. POST AMORTIZATION PERIOD

   SALE: i. DETERMINE REALIZED APPRECIATION
                        NET SALE PRICE - PURCHASE PRICE)
               ii. CALCULATE MAXIMUM CAPPED ANNUAL RETURN
                        (E.G., AVG. AMORT. PERIOD INDEX %+___%)
              iii. MULTIPLY (ii.) BY AVERAGE ANNUAL PRINCIPAL
              iv. DIVIDE PROCEEDS
                        (E.G., IF X = [NET SALES RICE - PURCHASE PRICE - (iii.)] >0,
                        THEN BORROWER RETAINS X)

FIG. 2
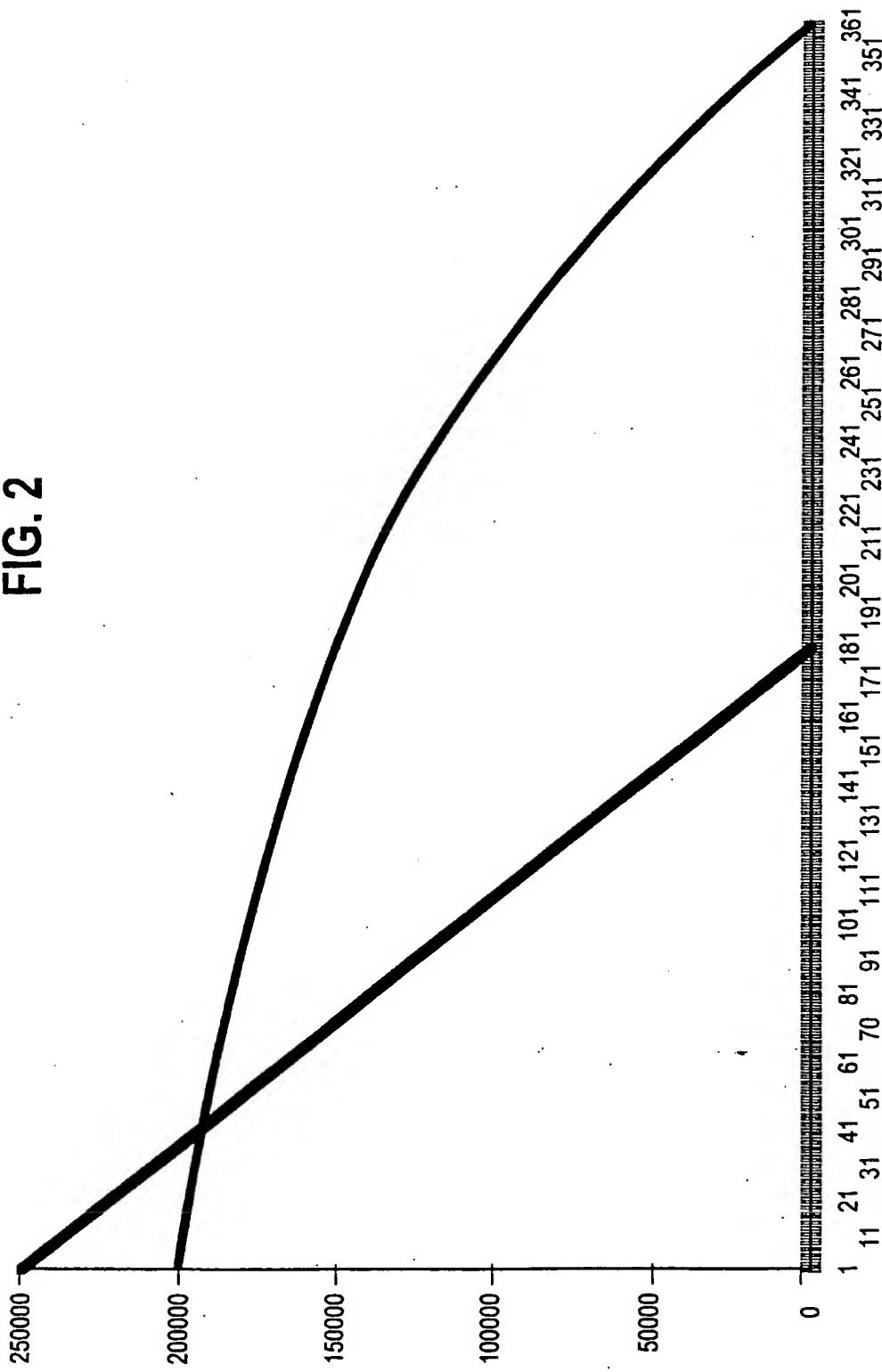
4/4

FIG. 3
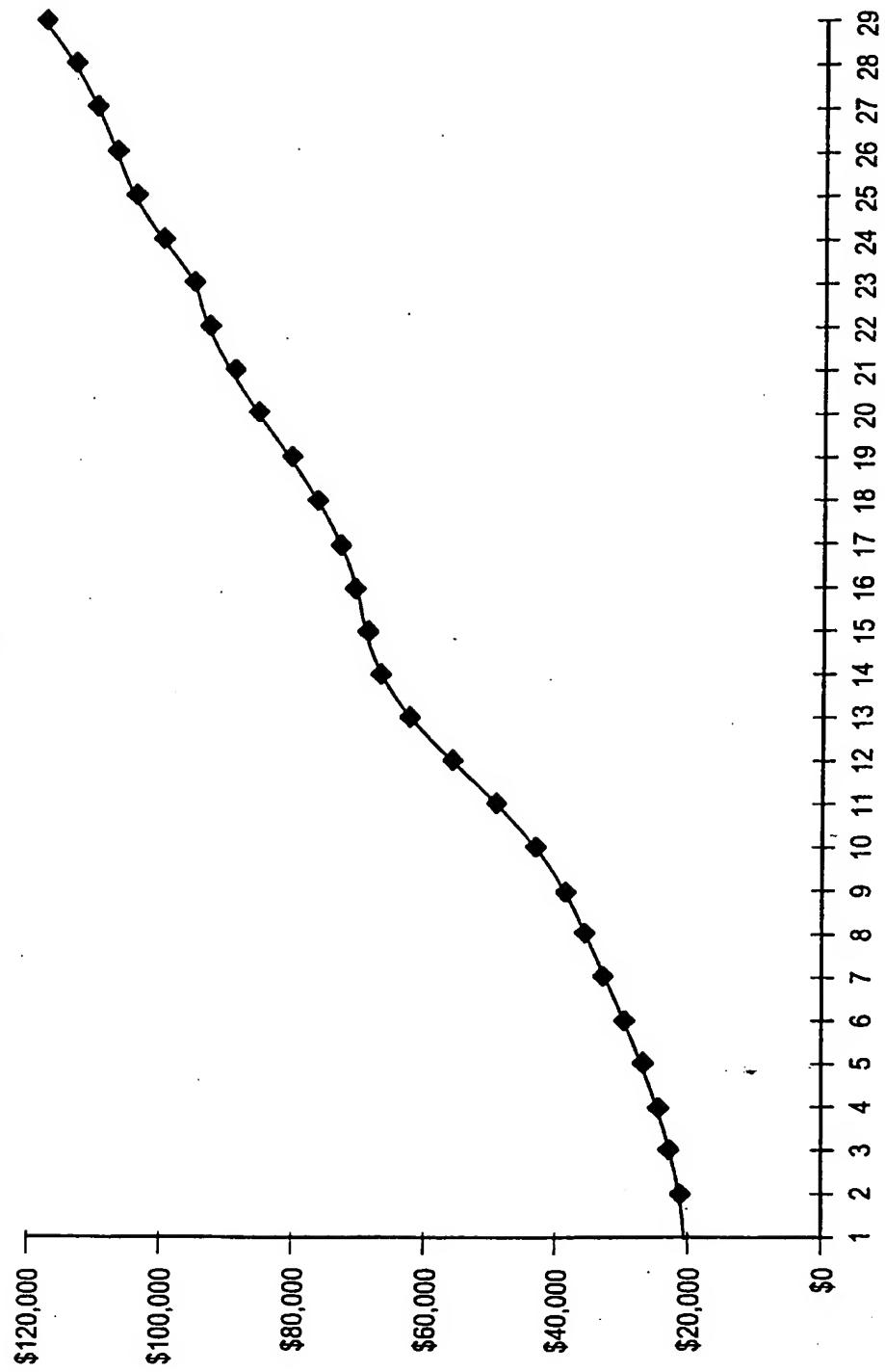
INTERNATIONAL SEARCH REPORT

International application No.	
PCT/US00/10801	

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) :GO6F 17/60

US CL :705/35,36,37,38

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 705/35,36,37,38

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WEST 2.0, CAS ONLINE, DIALOG

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4,876,648 A (LLOYD) 24 OCTOBER 1989, see entire document.	1-10
A	US 5,673,402 A (RYAN et al) 30 September 1997, see entire document.	1-10
A	US 5,689,649 A (ALTMAN et al) 18 November 1997, see entire document.	1-10
A	US 5,852,811 A (ATKINS) 22 December 1998, see entire document.	1-10

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

	Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A"	document defining the general state of the art which is not considered to be of particular relevance		
"E"	earlier document published on or after the international filing date	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O"	document referring to an oral disclosure, use, exhibition or other means		
"P"	document published prior to the international filing date but later than the priority date claimed	"&"	document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
03 JULY 2000	**2 3 AUG 2000**

Name and mailing address of the ISA/US	Authorized officer
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